**BEDES Strategic Working Group**
Third Meeting--Tuesday April 22, 2014 (1:00-5:00 EDT)

Face-to-Face/Bi-Coastal/Video-Linked Meeting:
East Coast: U.S. DOE, 950 L'Enfant Plaza, Washington D.C. (rooms 6097-6099)
West Coast:  LBNL, Building 90, Berkeley, CA (room 3122)

Convener: Rick Diamond, LBNL

Facilitator: Dr. Jonathan Raab, Raab Associates, Ltd.

<u>Meeting Summary</u>

24 people attended the WG meeting either in person in DC or at LBNL or by phone (see attendee list in Appendix 1)

1:00    **Welcome, Introductions, and Today's Agenda overview by Rick Diamond and Jonathan Raab**

Rick described the development by Samuel Johnson of the English dictionary for the purpose of standardizing spelling and seeking common definitions. Jonathan reviewed the agenda and goals for the meeting.

1:10    **BEDES Implementation Planning, Promotion, and Market Engagement.**

Themes that surfaced:
- Use cases and schemas should be made publically available
- Having more defined schemas should drive more BEDES use
- Explore doing a pilot with visible participants to garner market confidence

Robin Mitchel discussed what it means to be BEDES compliant and how schemas will interface with the "BEDES program". (See accompanying slides on website)

- BEDES is a dictionary of terms and definitions and does not have a hierarchy. Specific use cases that use the BEDES terms and definitions will be compliant with BEDES. .
- Schemas and use cases should be made available by the "BEDES program" to allow for compliance verification by use case developers.
- Compliance for specific use cases could be implemented by software importing and exporting use case datasets that are compliance with the BEDES dictionary terms and definitions.  Specific software applications would not need to change their internal definitions in order to do that.
- An online mechanism could be developed as a resource for use case schemas and development of BEDES
- "Compliance" may require different implementations for the various use cases and it is more convoluted the further you get from DOE
    o  Discussion

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- Q: Are the schema illustrative or prescriptive? If we only want to make sure the terms and definitions are consistent, why do we care about the relational aspects?
  - For databases to be combined, they need to be consistent. ISO 8000 example (terms are mapped between the dictionaries and the datasets are all consistent based on what they decide).
  - If we are going to have compliance and have verification (run it through an xml schema checker), you can't do it without having the schemas defined.
  - Mean a transfer schema, not a database structure. To export a compliant dataset, you need to use an approved transfer schema.
  - The schemas would not come from the BEDES program but by outsides users
- Q: Would the creator assert that their schema was BEDES compliant or would someone need to check it, and if so who would that be?
  - Would it be peer reviewed for compliance by use case definer, or by gatekeeper for BEDES?
- Q: We are using a technical tool to solve 2 different issues. One is semantic, for one use, "Which terms do we need?" The second is a technical capability that has to do with which schema to use. We need to separate those.
- Q: Need to be careful with the term "end user". There are 2 for BEDES: software developers or HPXML developers that want to be compliant and those who want the software to do the work and aren't going to be interacting with it closely (city). Different users have different subsets that they will find valuable. We also want to ensure that BEDES enables communications between tools, across use cases. We need several already existing tools and schemas that are already in line with BEDES to get this off the ground.
- Perspective from Haystack: We released our product with the Haystack model and have the forum so that people can comment on things. Push a couple entities to start using it and don't worry about certifications because it will take too long.
- EA: Our goal is that there will be a set of tools that are compatible with BEDES (BPD, SEED, CAS, maybe HPXML, Audit use case) by Oct, but all of these tools are using a different subset of BEDES. That is where Robin's point about publishing schemas is important because the relationships will be defined and if people want to share info, they will know.
- Q: Can a use case include terms that aren't included in the BEDES data dictionary or can it be a subset? The definition of BEDES compliant is based on export, do you not have to be able to import? Is it enough to import/export without crashing? Or is there a rule that all of the data needs to be in there and mapped a certain way?
  - Applications could have a warning on export for fields that are not part of BEDES.
  - The technical compatibility is that you can import/export without crashing and the semantic is that it is compliant in a meaningful way.
- Q: What does compliance mean?

- Raab: we talked about different levels of compliance at prior SWG meetings: mapping terms to BEDES is likely the first step and a middle ground, with full matching of terms with BEDES as potential ultimate goal
- This is intrinsically linked to verification. You need to make a method for them to get those fields (give a very specific definition and allow the user to call it what they will.)
- Consistent definitions are what matter most—more important than the terms themselves.
- To be compliant you have to have that export capability
- When you put on your sales hat, you have your early adopters, visionaries, and everyone else. We need to worry about helping the early adopters now and get this out.
  - Q: Can I have terms in my use case that are not in BEDES?
    - EA: In HPXML, there are placeholders for unique fields. Also, there could be layers of compliance (software developers need the relational schema and others just need the list)
    - On the software side I think it is fine to have additional pieces of info, but a use case shouldn't have extra fields.
  - It seems there are 2 levels of BEDES compliance: there is a BEDES compliance use case (the entirety of what is required, by BEDES is in the use case), software that is 100% compliant, and then software compliance via import/export capability

**Promotion and Market Engagement**

- Discussion
  - Having more schemas using BEDES is the key way this is going to grow. The DOE controls some (e.g., SEED, BPD), but we need more.
  - HPXML is a collection and standard. Before the standards were approved we did a pilot. It is important from a market standpoint. We can show we did the work and the benefits. We had 3 home performance programs and worked together to come up with a list of terms that they need to report the results from the end of a job. We then worked with software developers to code and identify the HPXML paths and test the transfer between auditing software and those that would receive the data.
  - Mimic Portfolio Manager's model: go to the top 5 visible buildings and get them onboard. We need to make sure people are successful in using it in order to get buy in. It will not be perfect and people will let us know where there are issues and how it can be approved..
  - The less we can make it confusing to the market, the better. There is nothing wrong with saying this is pilot phase 1.
  - Get trusted organizations in the pilot. (ASHRAE, USGBC, etc)

## 2:15 BEDES Maintenance and User Support

We broke into East Coast and West Coast break-out groups to discuss what maintenance and user support would be helpful as BEDES is rolled-out; and then compared notes.

California noted that we should post use cases and instructions online to drive use. They also explored the potential of BEDES thriving with coexisting dictionaries, e.g., California's Standards Data Dictionary (SDD) by ensuring that use of the dictionaries is not mutually exclusive

HPXML discussed its approach of user/program support and implementation guides. HPXML approached the software community and programs differently (programs can pull the terms out they need, software designers were interested in the test files). The federal tools which will be BEDES compliant (CAS, BPD, SEED, HES, E-Project Builder, PM, grants and research, SEP grants) were also highlighted. City Energy Project (CEP) representative noted the need for standard forms/templates for cities and states. Innovate Washington and NREL touched on meter level building data, submeter level equipment data and beyond to use BEDES for emerging technology and in test hubs.

- Other notes:
    - There are many project or implementation fields in XML that are not in BEDES.
    - Need terms and definitions that are clear. Have transparency. Have interconnection.
    - Once something is locked into the dictionary, you want it to be stable so that people can use it for long-term projects.
    - In the beginning, we should be very lax on BEDES compliance. We want to get market saturation.
    - Compliance definition: the ability to import and export data dataset the data in your tool that is in BEDES.
    - Need marketing from DOE or other groups to say that this is a burgeoning standard and we will translate your system
    - There is the BEDES world, then a subset that is useful to a use case, then the implementation of that subset (xml, standard form, etc)

### 3:15    Updating: Designing/Implementing Future Revisions and New Functionality

Again, we broke into East Coast and West Coast groups to discuss what maintenance and user support would be helpful as BEDES is rolled-out; and then compared notes; the notes below combine input from both sites.

- Could add BEDES to ISO 8000: 2 options - learning from them or joining them.

- Agreement among SWG members that adding fields is easier than changing or deleting fields so definition accuracy/vetting is important and a process needs to be put in place for revisions and version control
- The frequency of expected updates should be paced by the DOE at the slow end but software developers can move faster and BEDES will provide mappings between versions.
- What type of updates are needed, and at what frequency?
    - There will be constant work to flesh out the current modules.
    - PM is constantly evolving and they do it on a cycle-we will need to keep pace with them.
- What future functionality is potentially envisioned (should be considered)?

- o Hosting: BEDES could host all of the schemas and use cases; and possibly help with the testing and validation.
- o Quality Assurance: Range checking. Format for alpha numeric data, etc..
- o Validation: Compliance with BEDES and different schemas/use cases
- o Geographic/Language Scope: Expand first to other English speaking countries, and then possibly have translated to other languages for more international use (SEED has some of this already).
- o Expanded Definitions: Definitions for all the individual items in the constrained lists.

## 4:30    **Update and Next Steps on SWG Topics from Last SWG Meeting**

Rick described briefly what transpired at last SWG with regard to several issues and how LBNL's thinking is evolving. There was some limited feedback from participants given time constraints.

- • Hosting Options: Open Source (medical data model) and Hybrid (non-profit/DOE/Labs). Joining up with ISO 8000 nonprofit group is another option.
    - o Lessons learned from GBXML (tried to setup a nonprofit, but weren't able to get it).  Hard to launch a nonprofit.
    - o It is time for us to embrace the public private partnership.
    - o Open source for vetting but not necessarily for the approval or hosting
- • Standards (to be or not to be?)
    - o NFRC is just becoming a standard after 20 years. Not necessary for adoption
    - o If you join ISO, you will abide by their stipulations.
    - o Perhaps premature to consider standards until BEDES is past the shake down period
- • Branding/Naming/Tag line
    - o BEDES is more than just a dictionary, but not quite a specification
    - o LBNL proposing to stick with BEDES for now (but participants in D.C. after the meeting expressed interest in trying to improve naming)

## 4:55 Wrap-Up and Next Steps

We got brief feedback on the bi-coastal meeting:  pros (flexible, less carbon) and cons (limited to half-day meeting, inconsistent sound quality).  Discussed potentially adding another SWG meeting in September since LBNL has 3 month extension and strategic workplan won't be done until then.

**Appendix 1: Participants in SWG Meeting**

**Participants at DOE**

1. Steve Abercrombie
2. Elena Alschuler
3. Magnus Cheifitz
4. Marshall Duer-Balkin
5. Robert Hendron
6. Jessie Knapstein
7. Jonathan Raab
8. Dan Winters
9. Adam Wallen
10. Julie Caracino
11. Laurie Kerr

**Participants at LBNL**

12. Marc Costa
13. Devan Johnson
14. Avery Kintner
15. Stephen Roth
16. Rick Diamond
17. Shankar Earni
18. John Mejia
19. Andrea Mercado
20. Robin Mitchell

**Phone Call-in**

21. Supriya Goel
22. Cathy Higgins (no?)
23. Lindsay Robbins
24. Barbara Hernesman